

FIG. 1

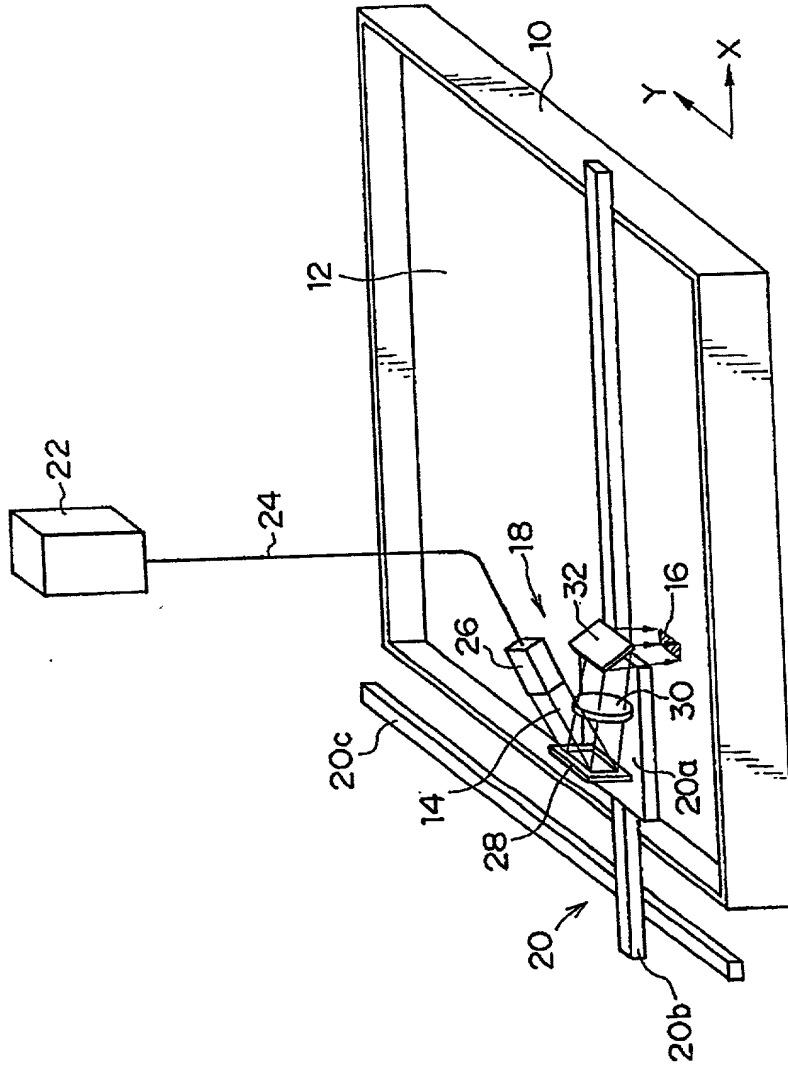


FIG. 2

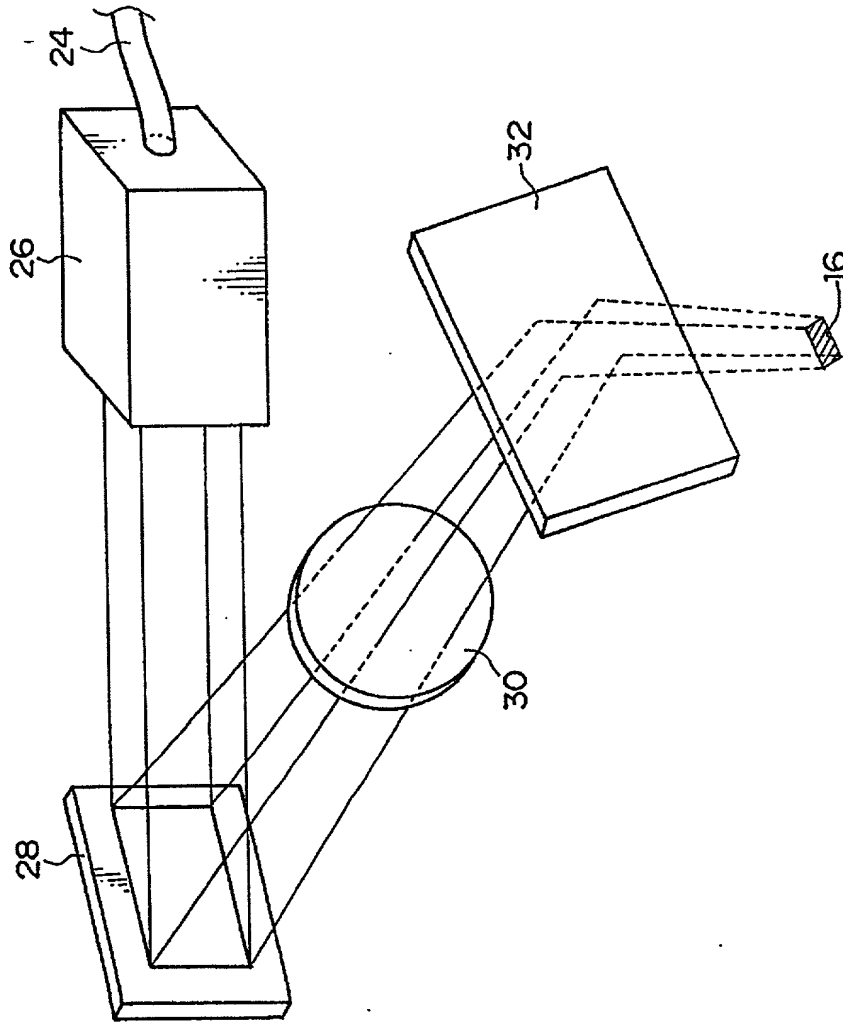


FIG. 3A

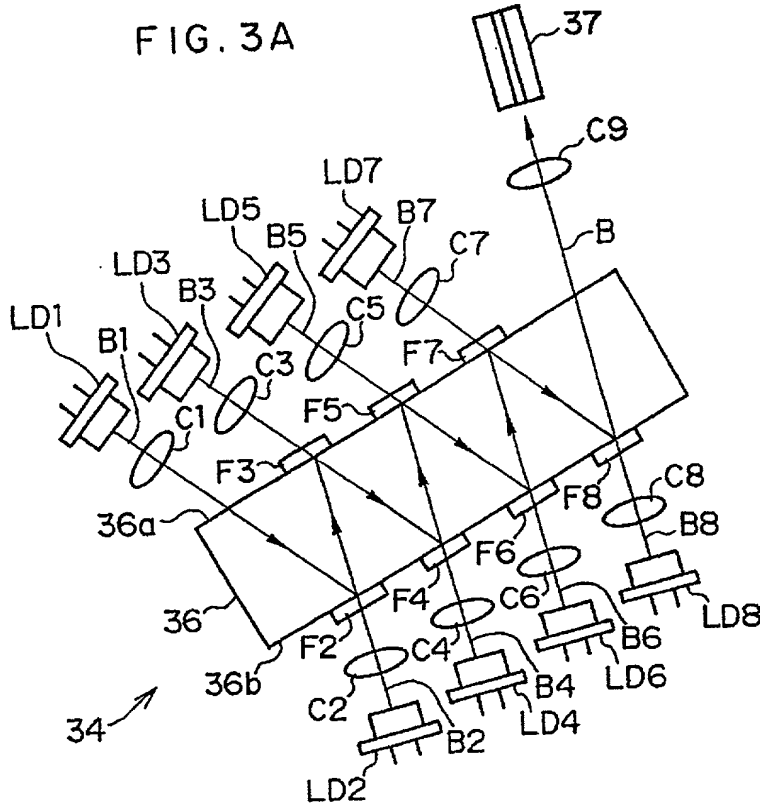


FIG. 3B

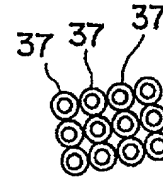


FIG. 4

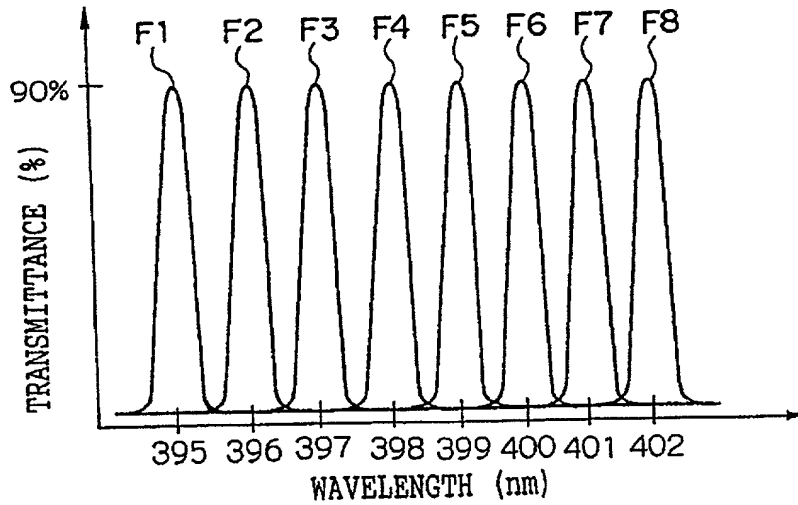


FIG. 5A

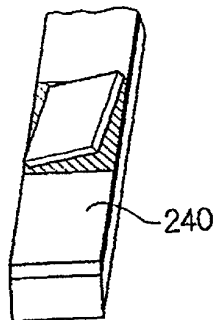


FIG. 5B

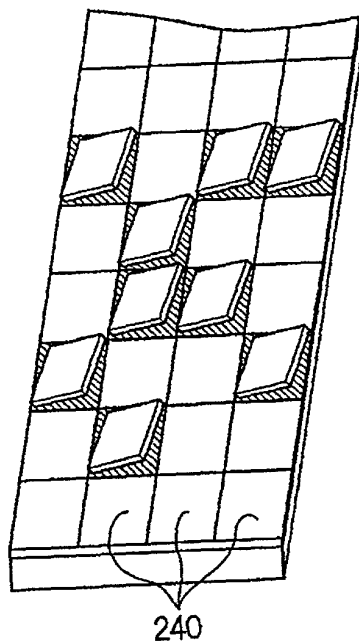


FIG. 5C

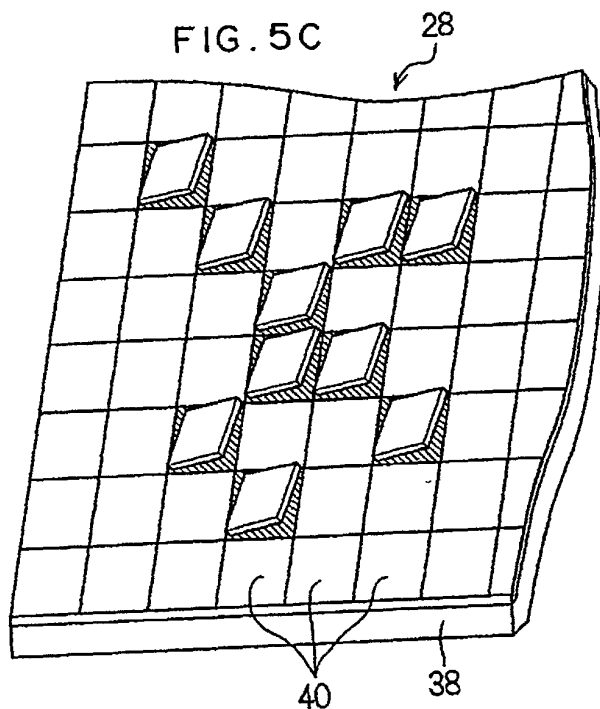


FIG. 6A

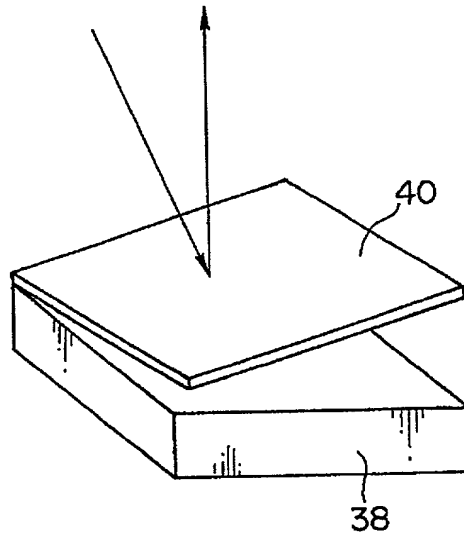
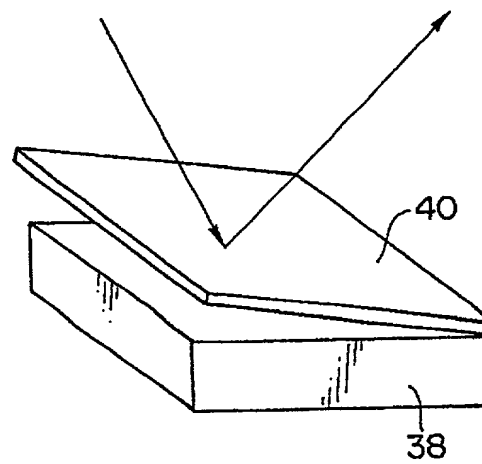


FIG. 6B



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FIG. 7

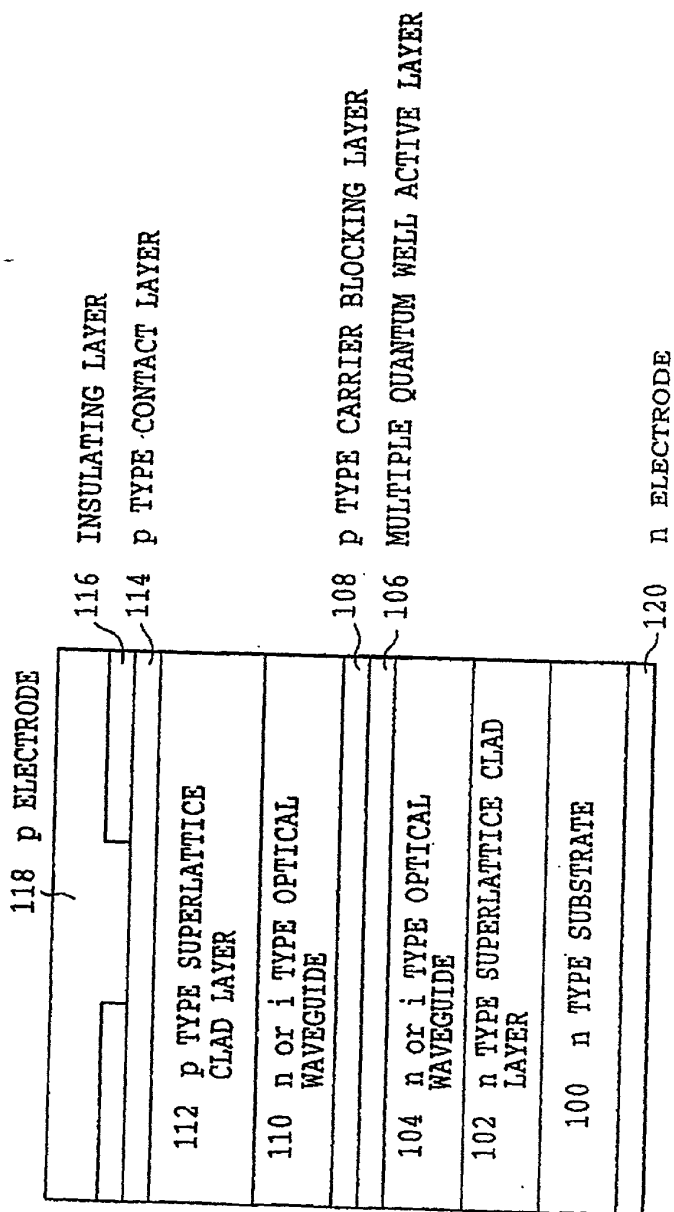




FIG. 9

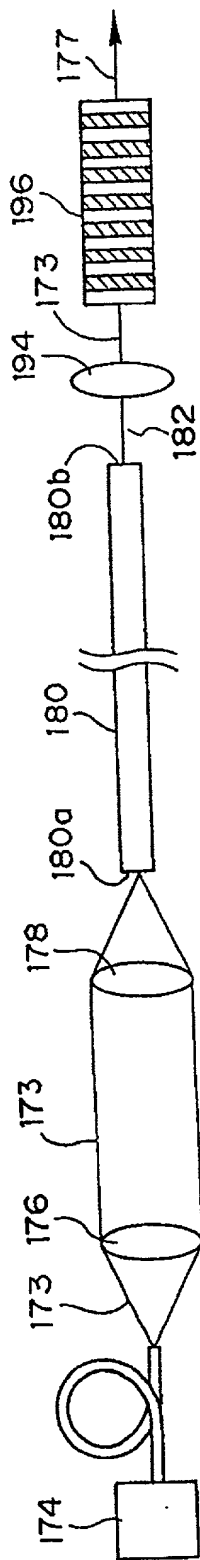




FIG. 10

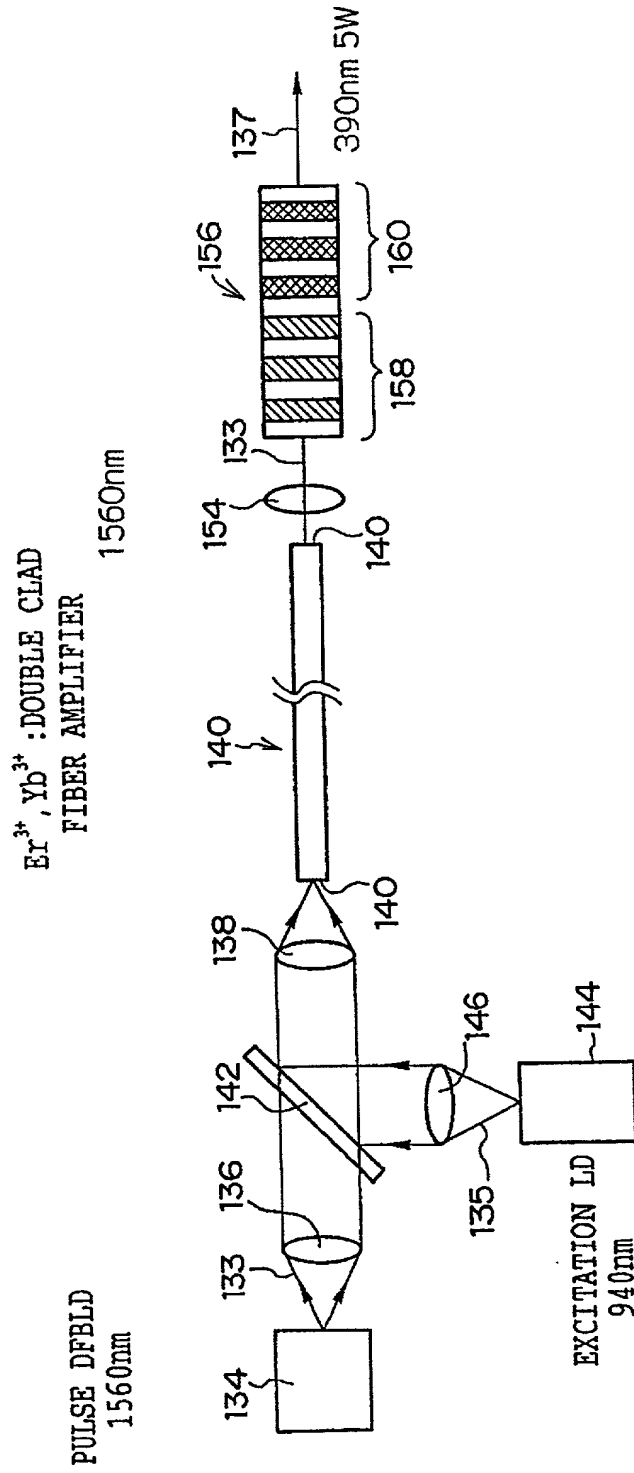
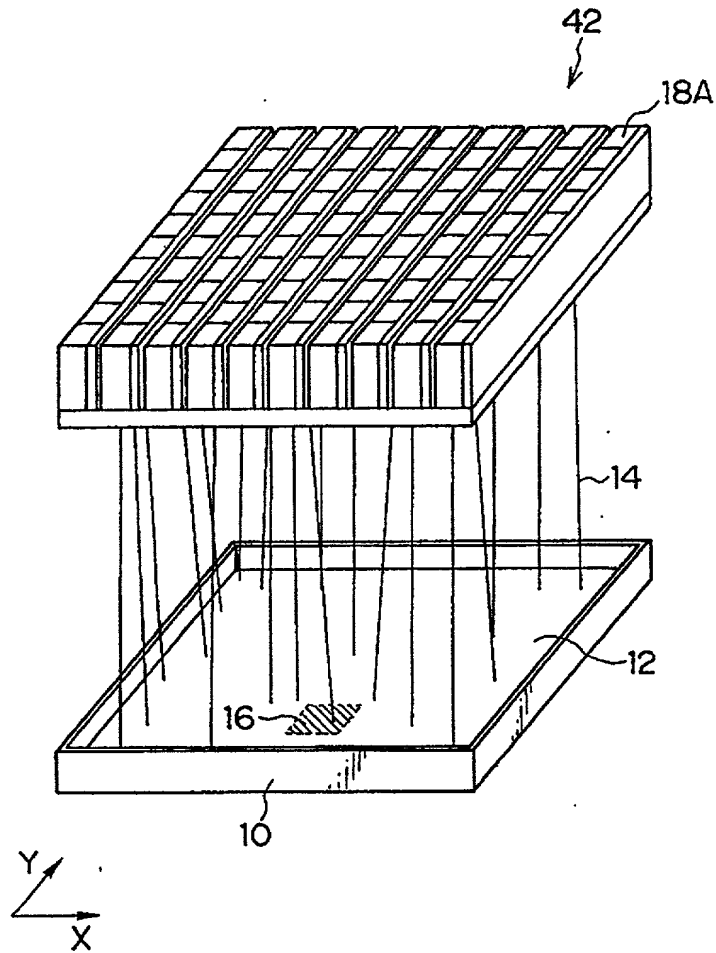


FIG. 11

FIG. 11 is a perspective view of a multi-channel optical device 10. The device includes a substrate 12 with a series of parallel waveguide channels 20. Each channel 20 contains a series of optical components including waveguide segments (e.g., 20a1, 20a2, 20b1, 20b2, 20c), couplers (e.g., 141, 142, 143, 144), and detectors or sensors (e.g., 161, 162, 163, 164). The channels are interconnected by a network of waveguides and couplers. A control unit 22 is connected to the device via a series of lines (241, 242, 243, 244). The control unit 22 includes a central processing unit 221 and a memory unit 222. A coordinate system (X, Y) is shown in the upper right corner.

FIG. 12



[illegible]

FIG. 14A

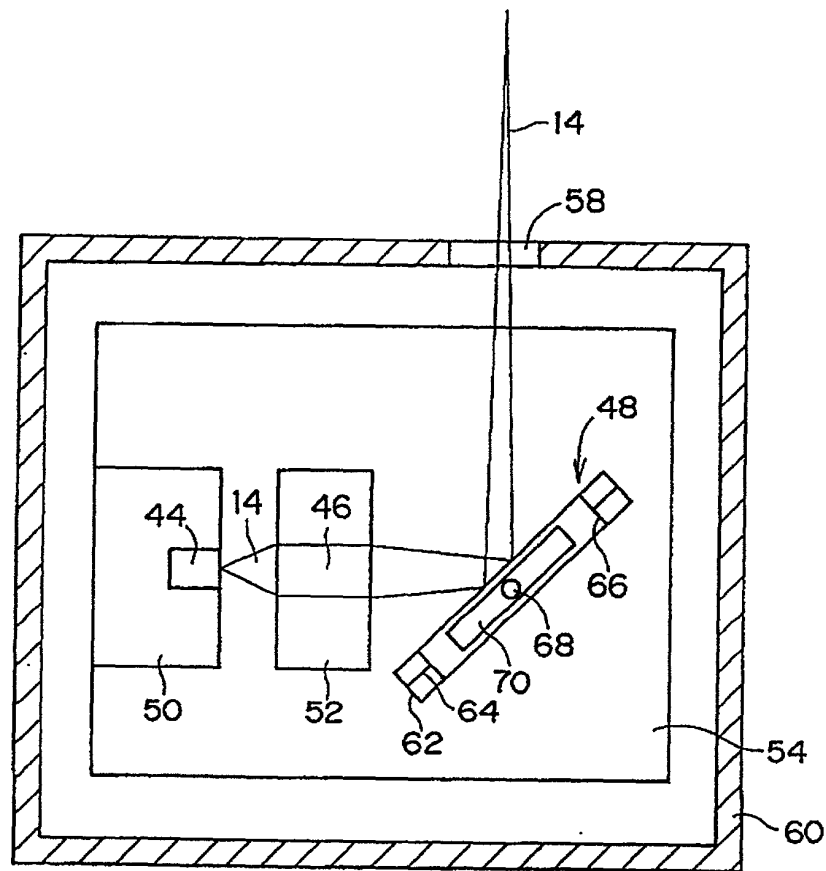


FIG. 14B

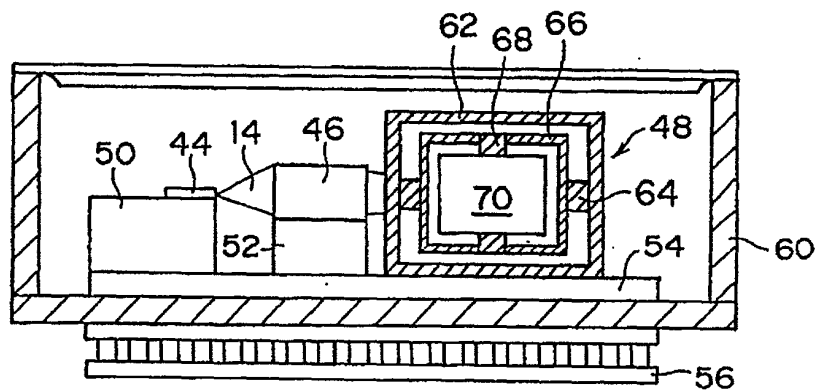


FIG. 15A

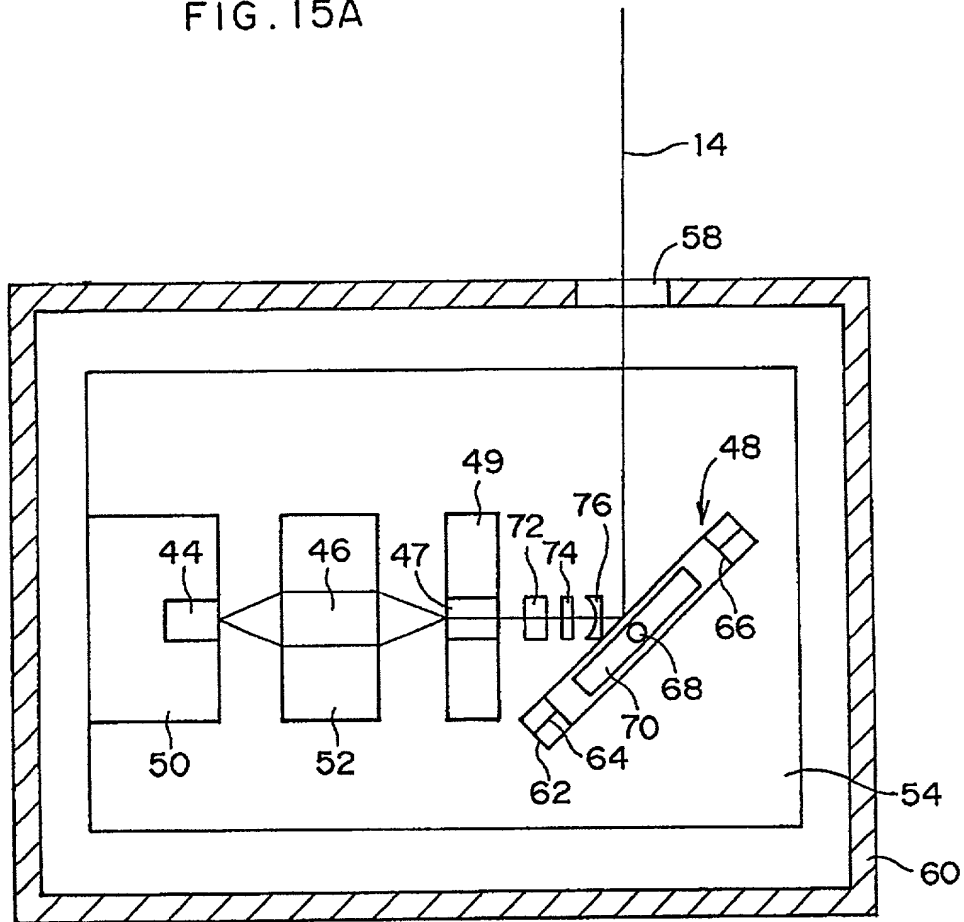


FIG. 15B

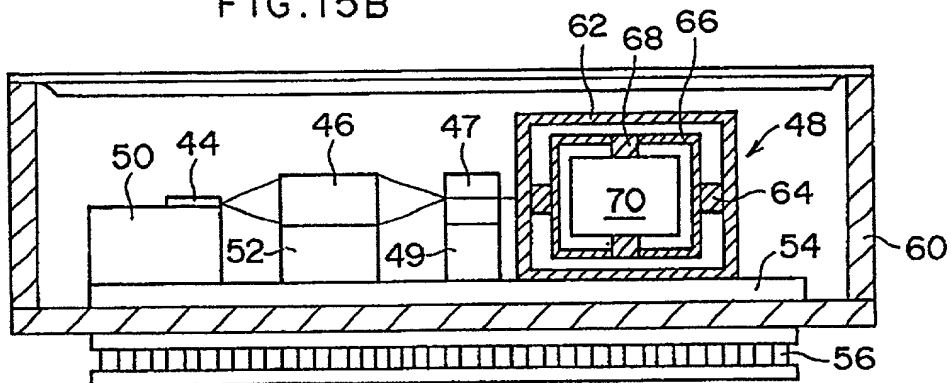


FIG. 16A

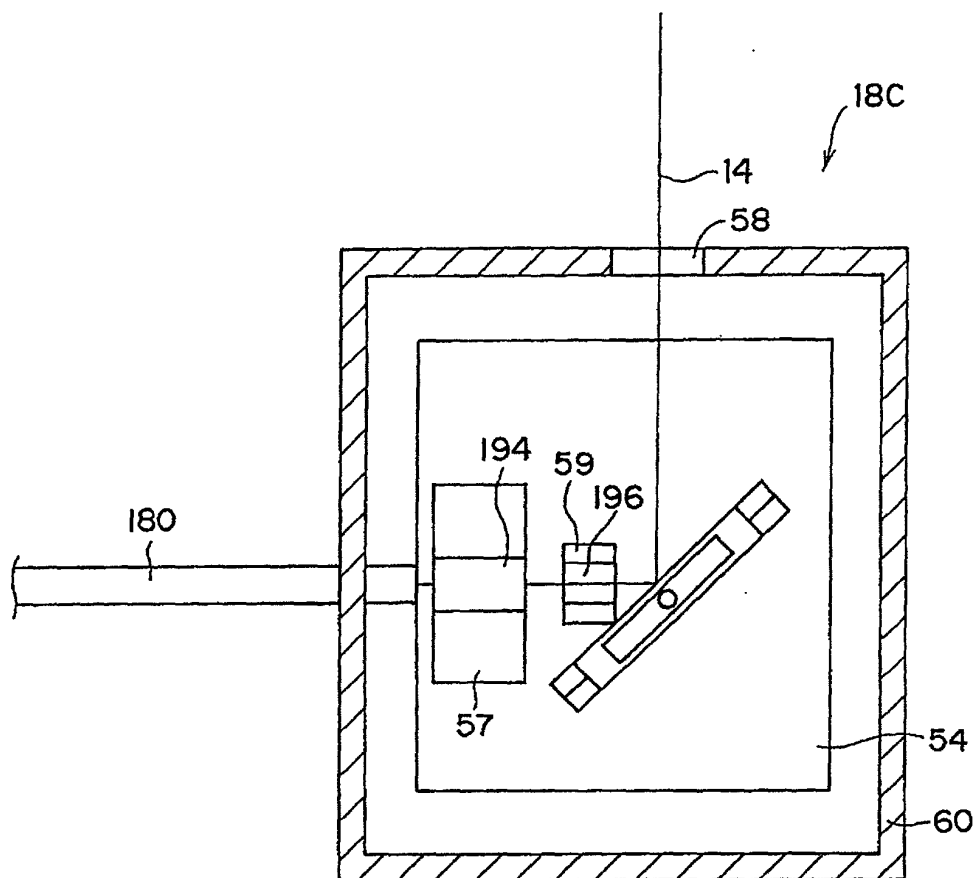


FIG. 16B

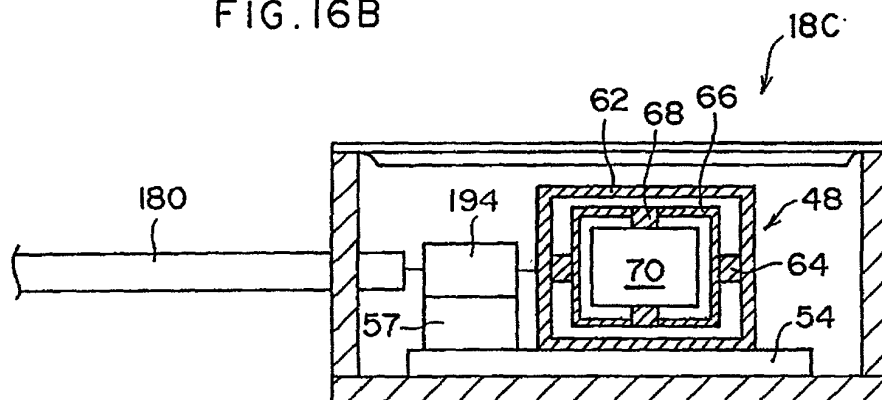


FIG. 17

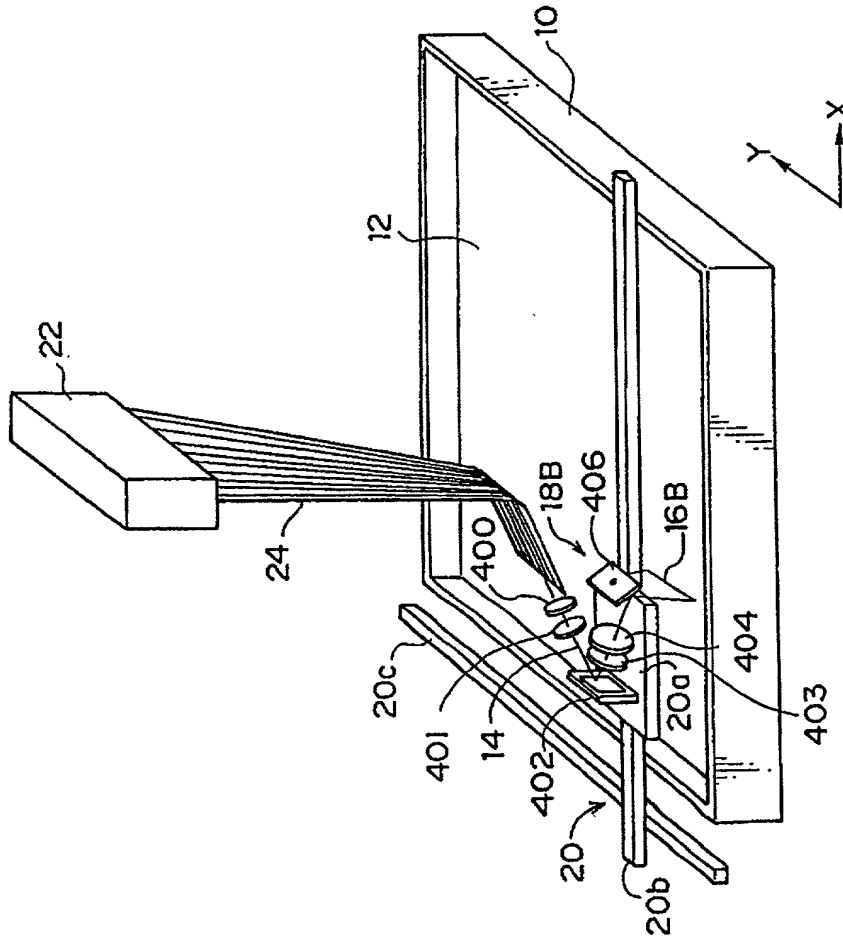




FIG. 18

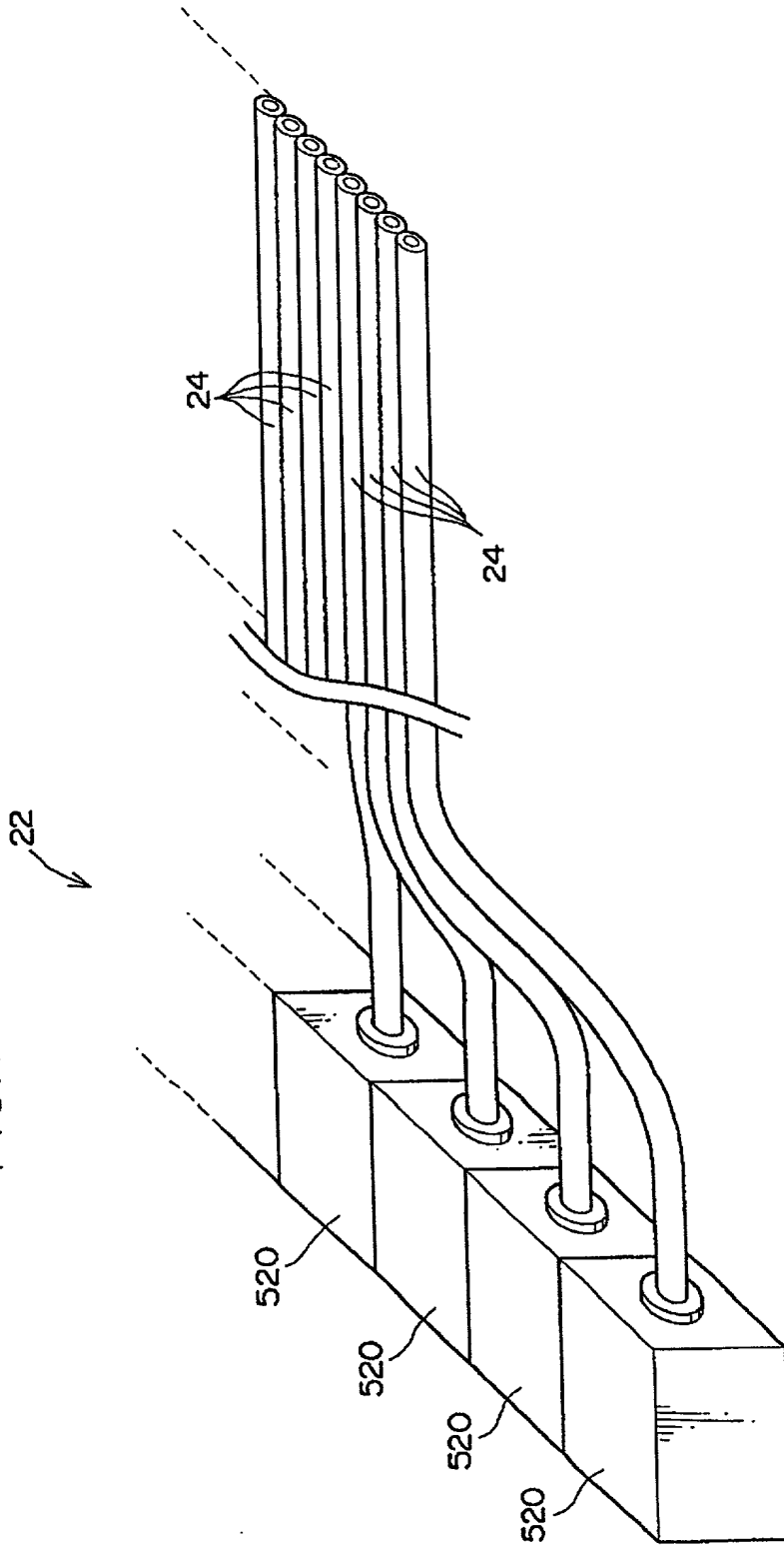
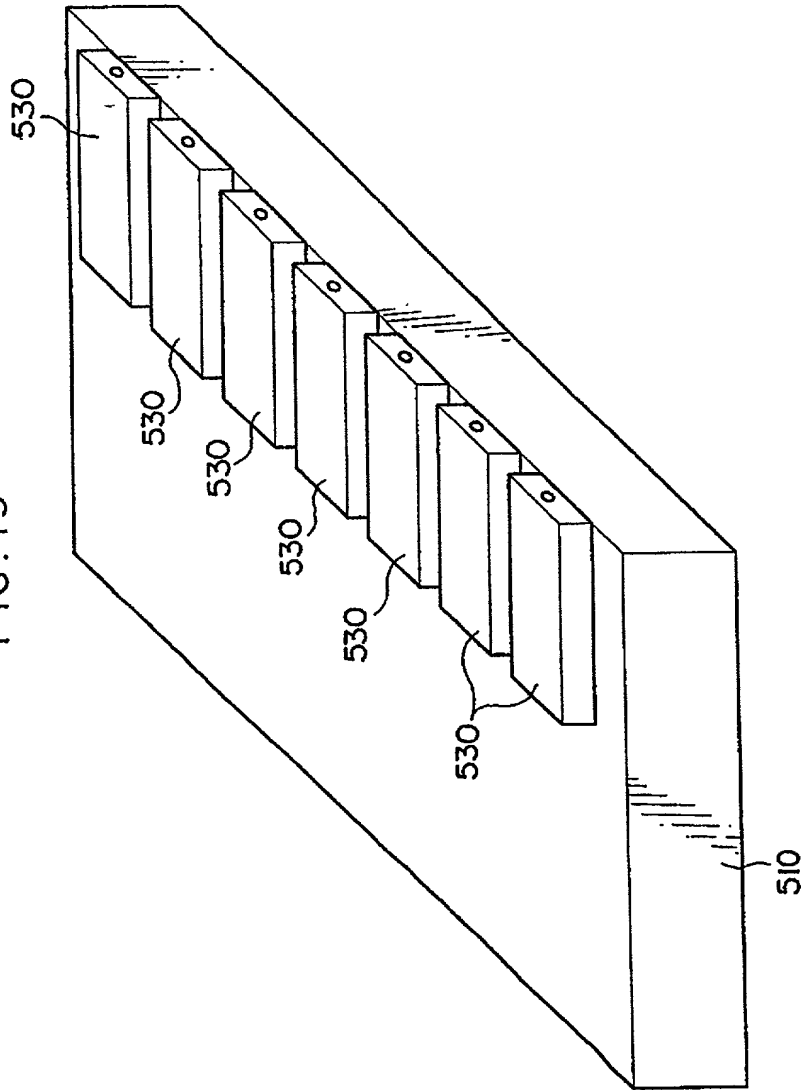


FIG. 18

FIG. 19



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FIG. 20A

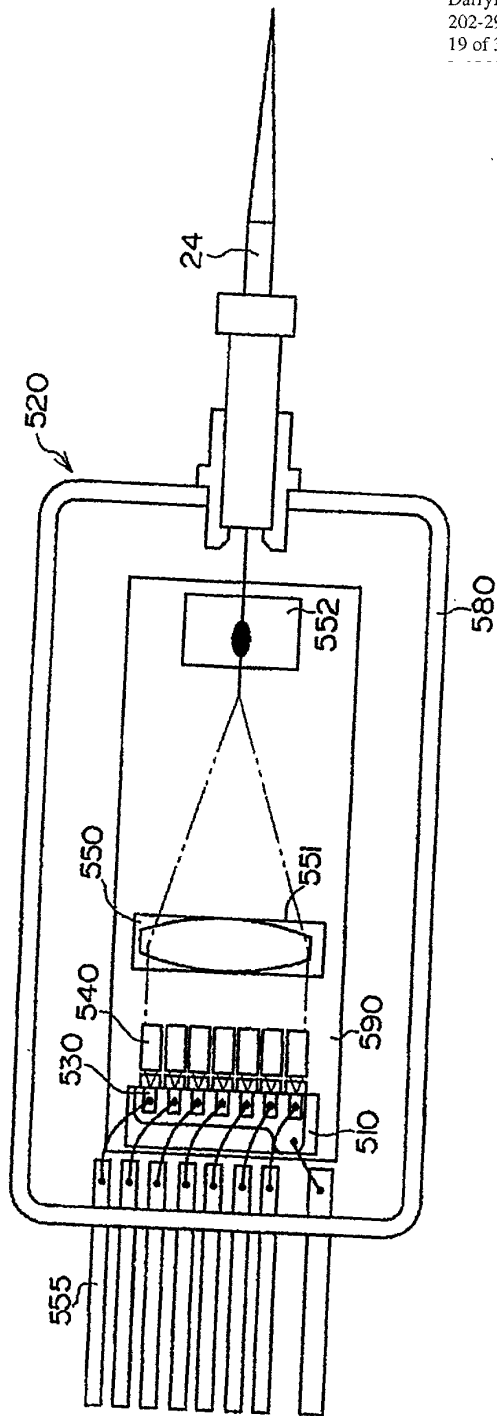


FIG. 20B

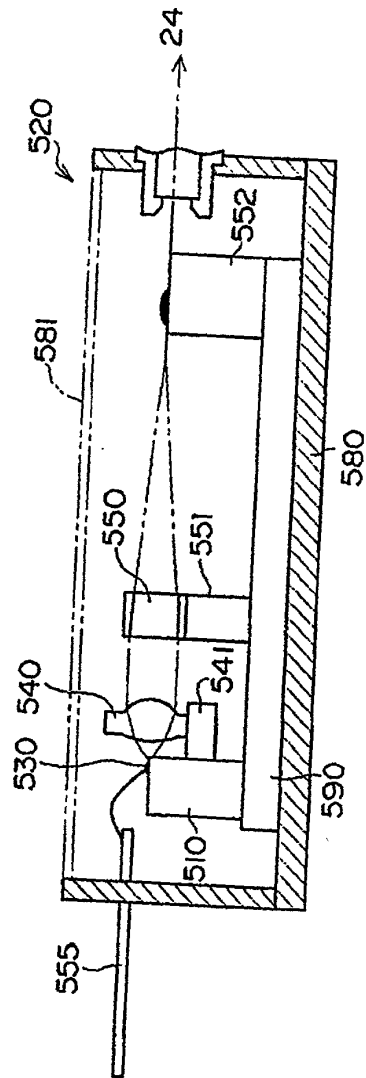


FIG. 21A

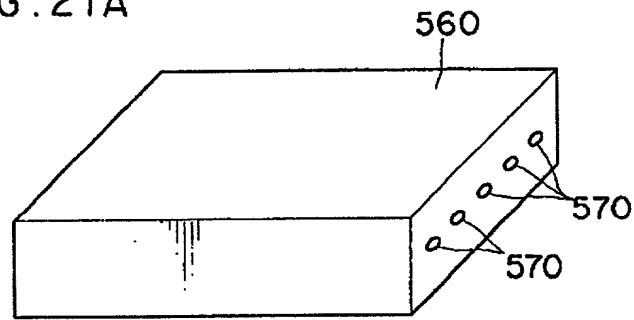
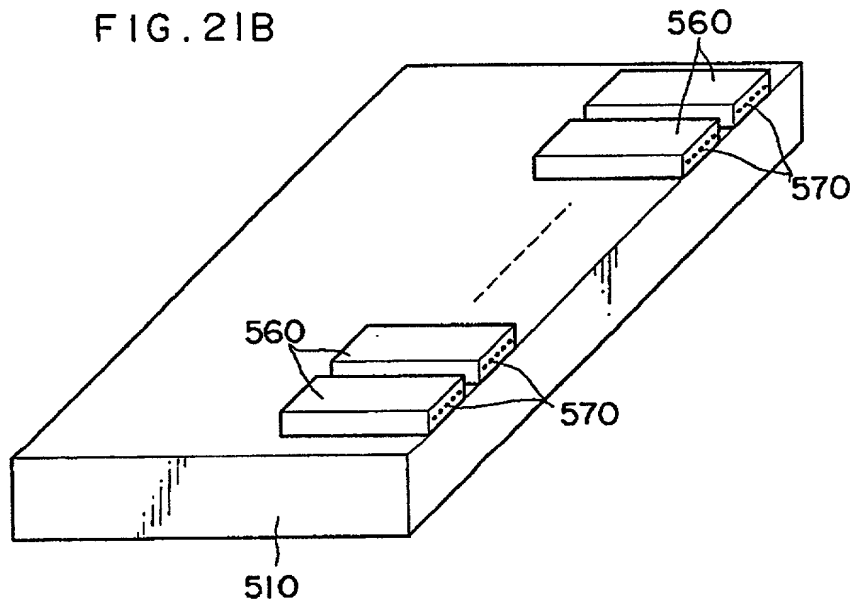


FIG. 21B



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FIG. 22

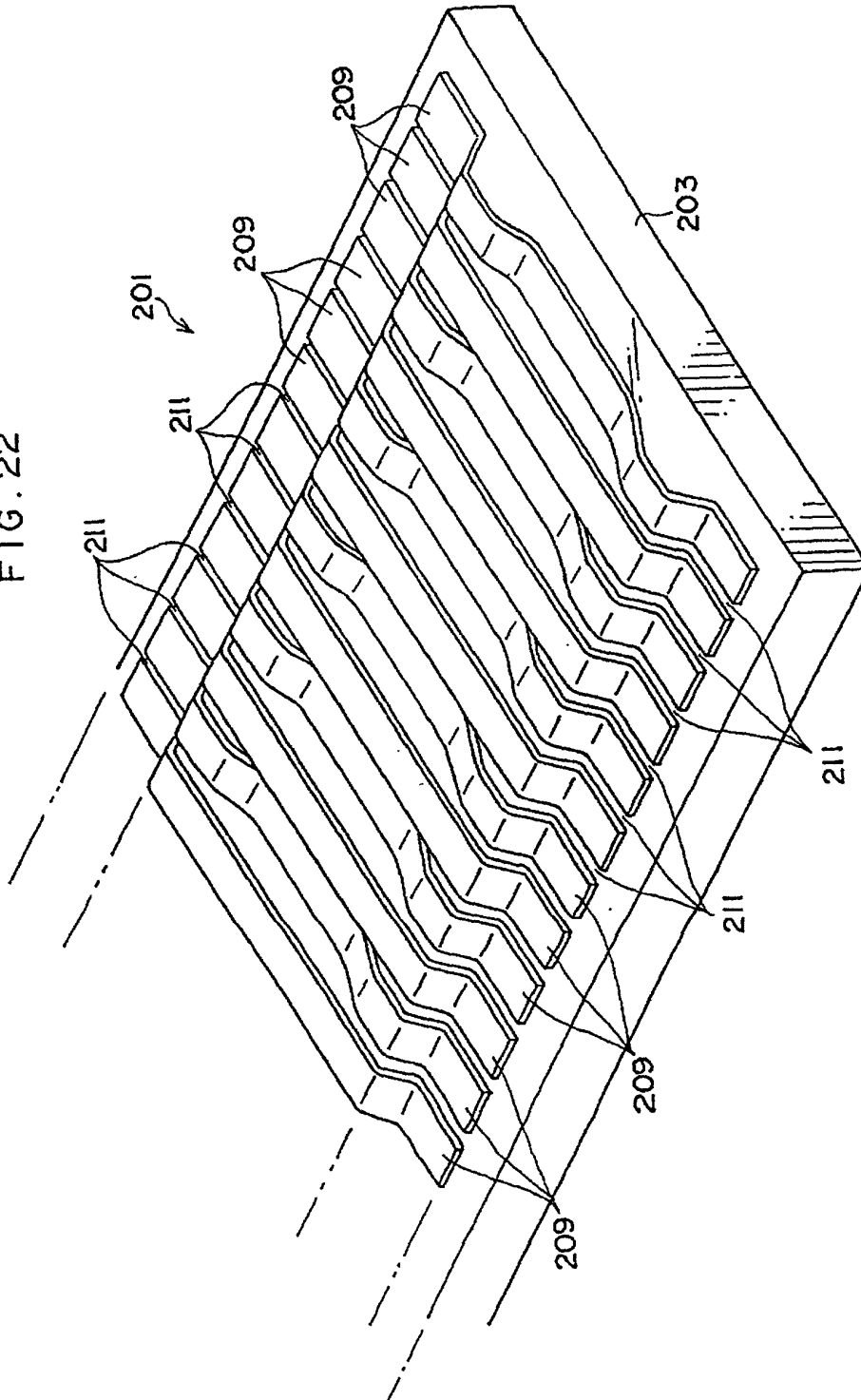


FIG. 23A

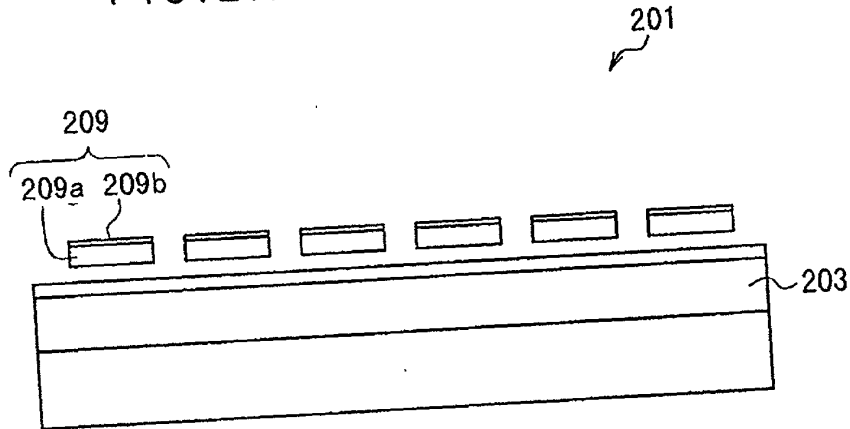
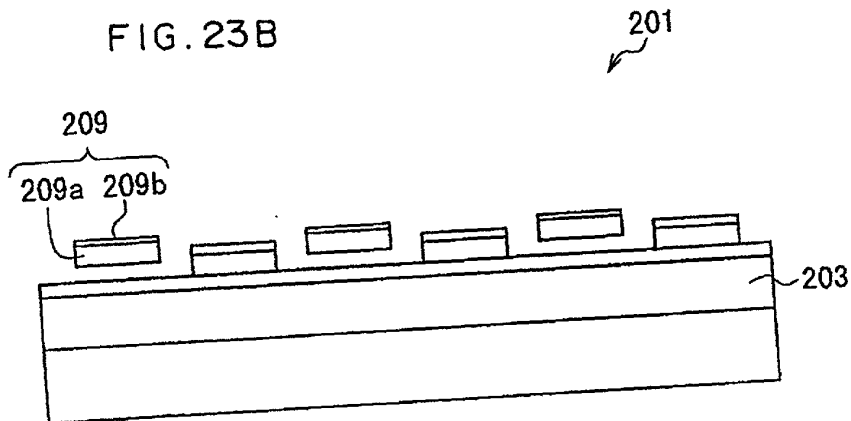


FIG. 23B



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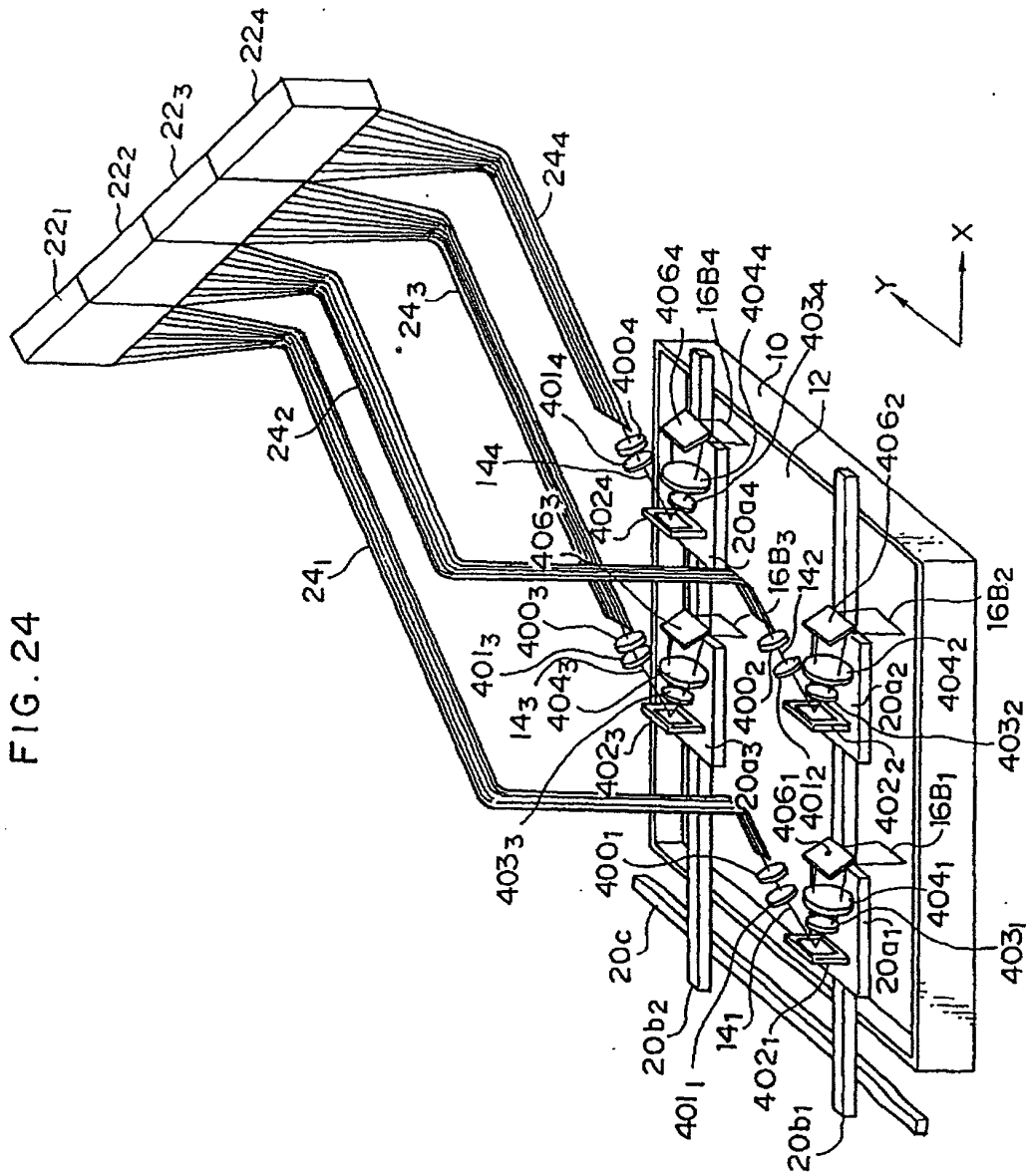


FIG. 24

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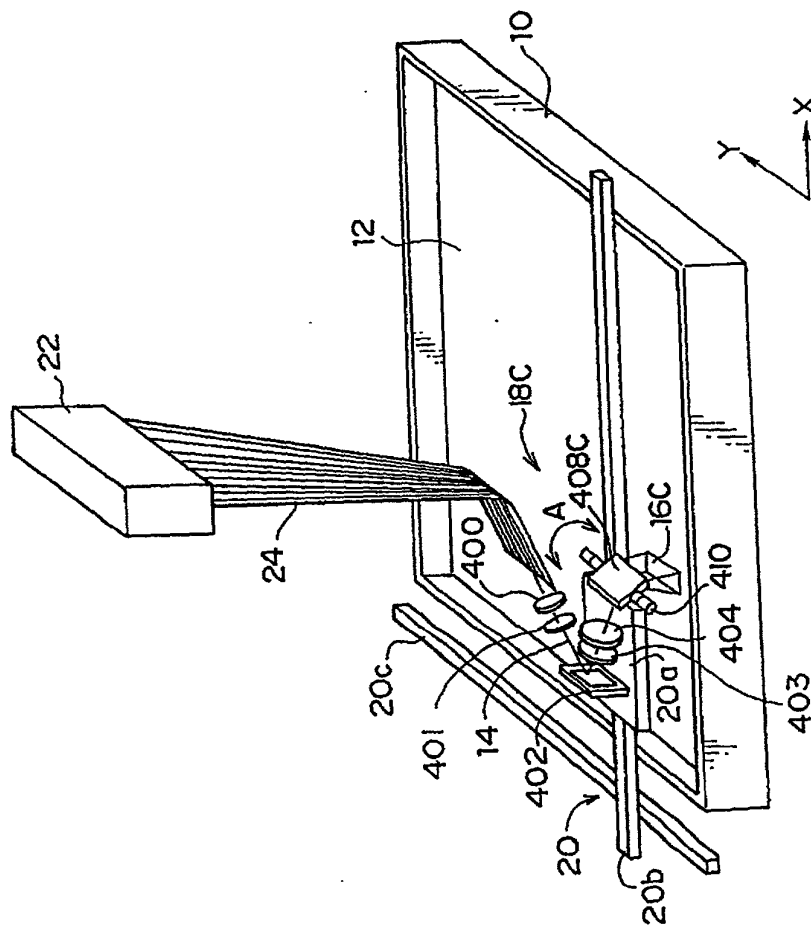






FIG. 27

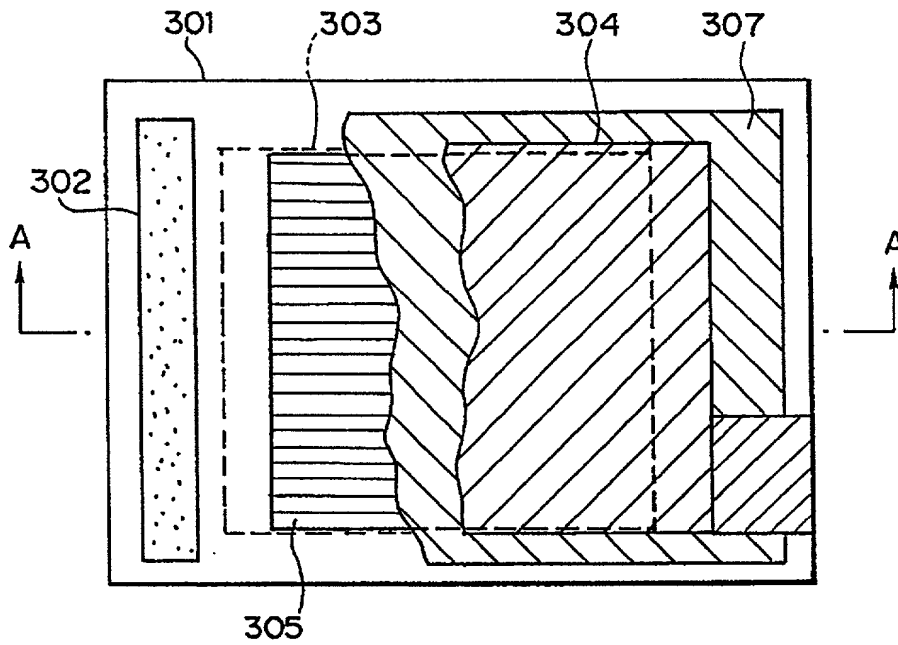




FIG. 29A

FIG. 29B

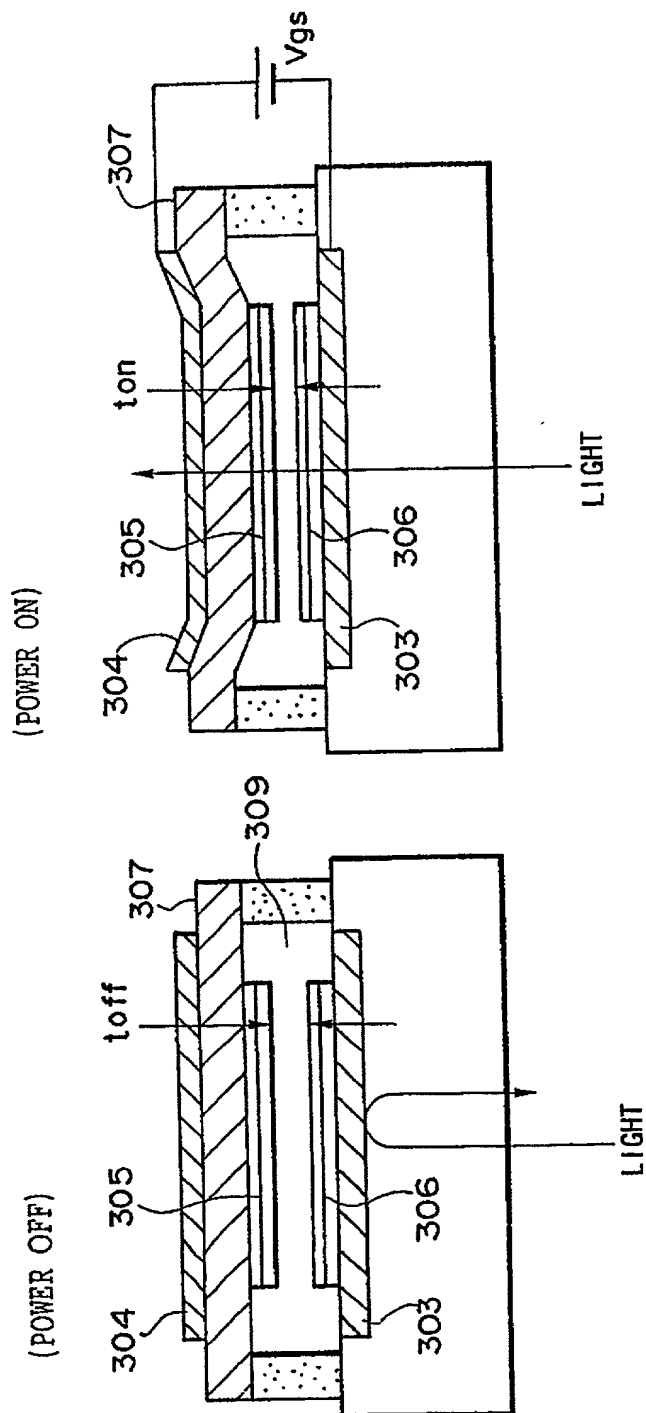


FIG. 30

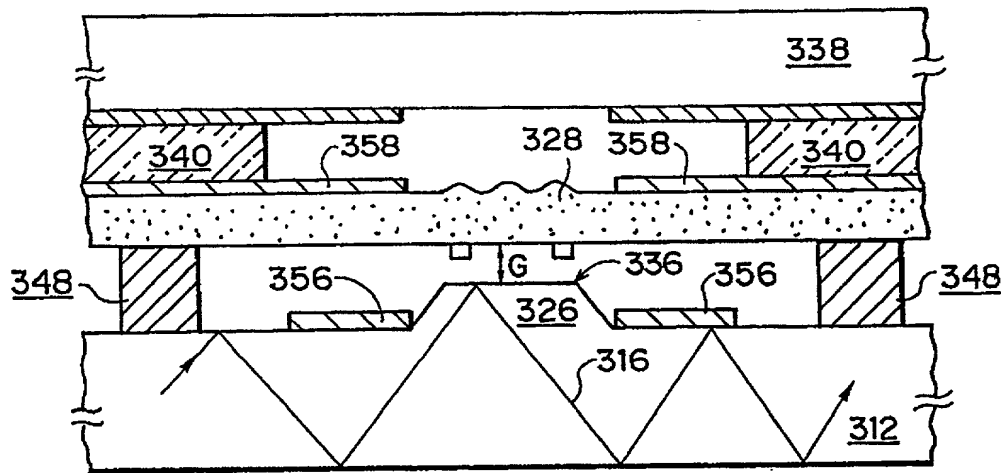
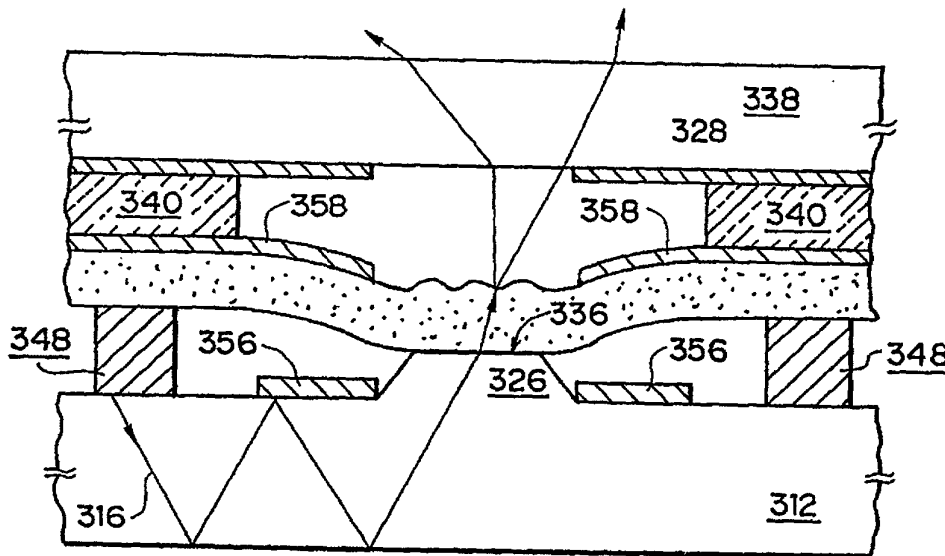


FIG. 31



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FIG. 32  
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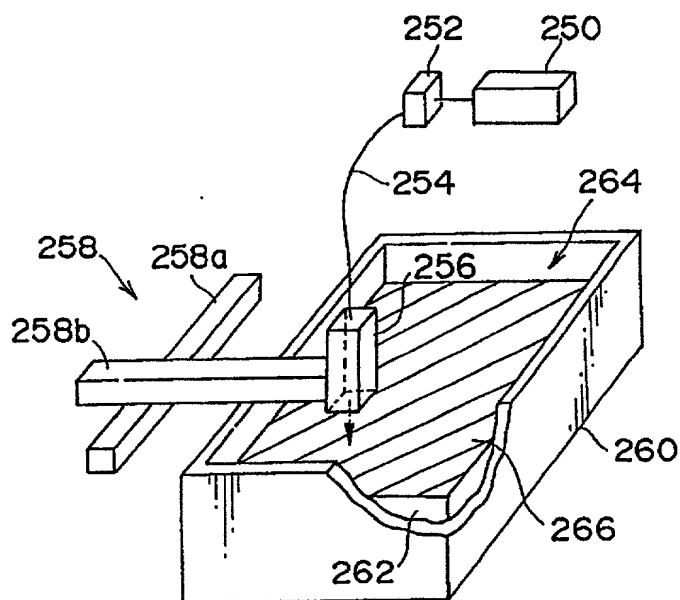


FIG. 33  
 PRIOR ART

